SCIENTIFIC AMERICAN.

THE ADVOCATE OF INDUSTRY AND ENTERPRISE, AND JOURNAL OF MECHANICAL AND OTHER IMPROVEMENTS.

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THE SCIENTIFIC AMERICAN,

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(The Principal Office being at New York,)

BY PORTER & MALLERY.

RUFUS PORTER,—Editor.

Each number of this paper is furnished with from two to five ORIGINAL ENGRAVINGS, many of them elegant, and illustrative of NEW INVENTIONS, SCIENTIFIC PRINCIPLES, and CURIOSITIES; and contains as much Interesting Intelligence as six ordinary daily papers, consisting of notices of the progress of Mechanical and other *Scientific Improvements*,—American and Foreign Inventions; Catalogues of American Patents;—Scientific Essays, illustrative of the principles of the Sciences of Mechanics, Chemistry, and Architecture;—Instruction in various Arts and Trades;—curious Philosophical Experiments;—Miscellaneous Intelligence, Poetry, and, occasionally, Music.

This paper is especially entitled to the patronage of Mechanics and Manufacturers, being the only paper in America devoted to the interests of those classes; but is particularly useful to Farmers, as it will not only apprise them of improvements in agricultural implements, but instruct them in various mechanical trades, and guard them against impositions. As a family newspaper, it will convey more useful intelligence to children and young people, than five times its cost in school instruction. Another important argument in favor of this paper, is, that it will be worth two dollars at the end of the year, when the volume is complete, and will probably command that price in cash, if we may judge from the circumstance that old volumes of the "New York Mechanic," by the same editor, will now command double the original cost.

TERMS.—"The Scientific American" will be furnished to subscribers at $2, per annum,—one dollar in advance, and the balance in six months.

Five copies will be sent to one address six months, for four dollars in advance.

Any person procuring two or more subscribers, will be entitled to a commission of twenty-five cents each.

TERMS OF ADVERTISING.—For 10 lines, or less, 50 cents for the first, and 12 1-2 cents for every subsequent insertion.

Half and Half,

Oh, what is the manner of half of us mortals?
Half sober, half crazy,
Half tired and half lazy;
Half sleeping, half waking,
Half broken, half breaking,
Half dreaming, half thinking,
Half sipping, half drinking,
Half bolting, half eating,
Half honest, half cheating,
Half laughing, half crying,
Half yawning, half sighing,
Half dead, and half dying—
And this is the manner of half of us mortals.

Oh, how is the world that we mortals inhabit?
Half sun and half showers,
Half thorns and half flowers,
Half to-day, half to-morrow,
Half joy and half sorrow,
Half gloom and half gladness,
Half mirth and half sadness,
Half care and half quiet,
Half peace and half riot,
Half hawks and half swallows,
Half hills and half hollows,
Half rest and half trouble,
Half substance, half bubble—
And so is the world that we mortals inhabit.

December.

No sun—no moon—
No morn—no noon—
No dawn—no dusk—no proper time of day—
No sky—no earthly view—
No distance looking blue—
No road—no street—no t'other side the way—
No end to any row—
No indications where the crescents go—
No top to any steeple—
No recognitions of familiar people—
No courtesies for showing 'em—
No knowing 'em—
No travelling at all—no locomotion—
No inkling of the way—no motion—
"No go"—by land or ocean—
No mail—no post—
No news from any foreign coast—
No park—no ring—no afternoon gentility—
No company—no nobility—
No warmth, no cheerfulness, no healthful ease,
No comfortable feel in any member—
No shade, no shine, no butterflies, no bees,
No fruits, no flowers, no birds, in December.

A Precaution.

Pat Murphy, my footman, desirous to suit,
And so quick on his errands to go,
Had walked till he had fairly worn in his boot
A little round hole in the toe.

Next morning I saw him intently at work,
(I scarcely could ask him for laughter,)
In the heel he was boring a hole with a fork—
"Why, Pat," says I "what are you after?"

"Faith, master," says he, "you the reason shall know,
The cause I don't wish to conceal,
'Tis to let all the wet that comes in at the toe,
Pass immediately out at the heel."

SHIP TRANSPORTATION ON RAILROADS.

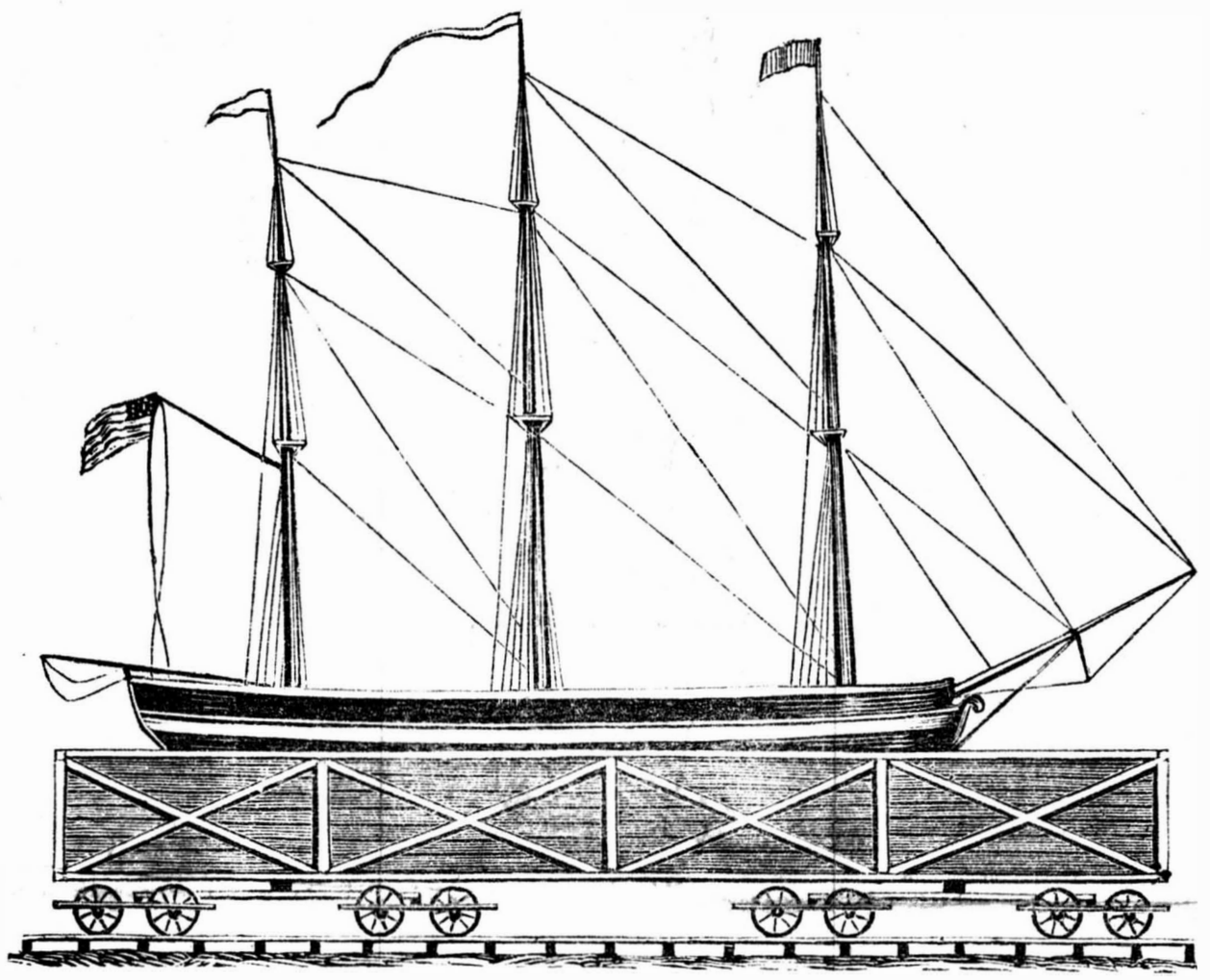
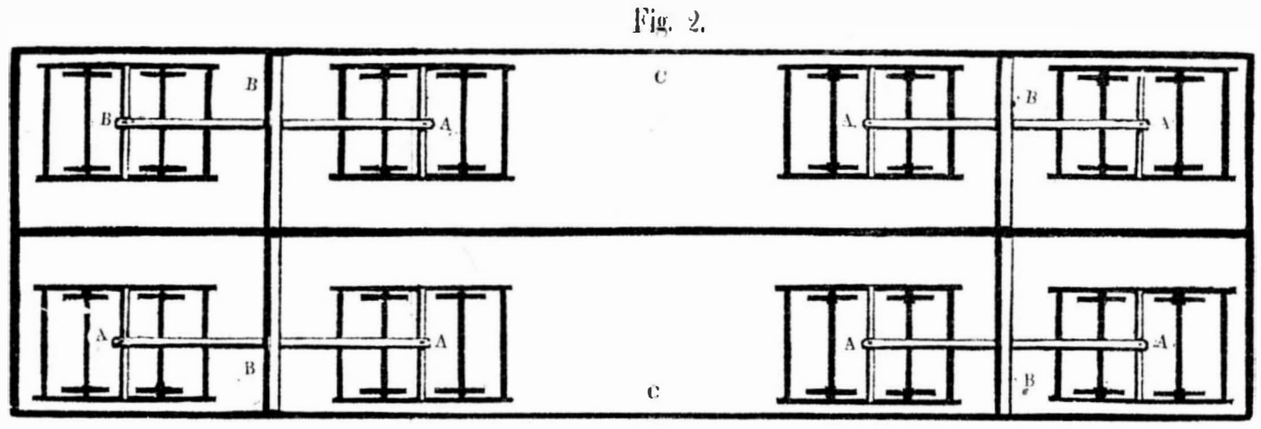


Fig. 2.



INTRODUCTORY REMARKS.—We have several times spoken of the feasibility of transporting marine vessels through the country by railroad, but having furnished no illustrations, but little attention has been drawn to the subject. Much has been said on the subjects of building and placing armed vessels on the lakes, and of constructing a ship canal across the Isthmus of Panama, from the Atlantic to the Pacific Oceans: the latter subject especially, has been revived recently, and people are earnestly discussing the importance of the project. But in this age, while the superiority of railroad transportation, over that of canals, is so abundantly manifest, it is truly astonishing that the project of transporting vessels by railroads has never been mentioned, neither in Europe nor America. Yet it is clearly evident, as we shall endeavor to make it appear, that the construction of suitable railroads and cars, and the transportation of vessels thereby, is much less difficult, and will be attended with less expense, than the construction of canals, and the passage of large vessels through them.

THEORY.—It is well known that a single stout built car-wheel, is capable of safely sustaining a burden of ten tons. Of course a car mounted on 32 wheels, and bearing equally on each, will carry 320 tons weight. There is no specified limits to the strength of wheels, and there is no difficulty in constructing a car with double that number of wheels—so arranged that the burden may bear equally on each, however—if occasion requires. With regard to the requisite power for propelling such a car with such a load, it is well understood that only two engines would be required to propel a loaded ship of 600 tons, with a fair speed on a well constructed road. And even if the road is not level, there has been more than one judicious invention already patented, by the adoption of which, even a single engine would propel the largest ship, over the inclined plane, though with but a moderate speed:—thus evading the tedious process of locking through canal elevations, and avoiding the necessity of many draw-bridges, as most of the crossing roads might pass under, or on the same level with the railroad. Should the New York and Erie railroad be constructed with a firm double track, and a ship car be placed thereon, it would not only induce a great amount of ship-building on the lakes, for the New York market, but in case of war, our Government might readily place any portion of our navy upon the lakes, at short notice.

EXPLANATION.—The first figure shews a side view of a section of railroad, with a 32 wheeled car loaded with a ship-lock partly filled with water, and a ship afloat therein. This ship-lock—a term we are constrained to use, on account of its similarity to the lock of a ship-canal—is strongly built on the bridge principle, and has a water-tight gate at each end. The shape of the interior is not a parallellogram, but similar to that of a ship's hull; thus admitting great strength of construction, by interior braces, and requiring a less quantity of water to keep the vessel afloat while on the passage. Fig. 2 is a vertical view, or plan of the car, with its principal timbers. It has 32 wheels, each pair connected by axles, each pair of axles connected by the side bars of a square car-frame: each pair of frames are connected by a centre beam, A A; each pair of centre beams are connected by a stout cross-beam, B B, and the two cross-beams are connected by the side sills, C C, of the ship-lock. The ends of the double-track railroad must be extended some distance, on a moderate inclination, into the water. When a vessel is to be taken up, a car with the ship-lock is run into the water, and one gate of the lock being open, the vessel is floated into the lock and the gate is closed. The car may be then drawn forward by cables or chains, till it reaches the dry land, when the engines are run back and connected directly to the car. The officers, crew, and passengers of the vessel, may remain on board during the land section of the voyage.

SENSIBLE ADVICE.—Some lady thus sensibly advises her sex:—The young married woman who would continue to exercise the same influence over the husband, that she formerly did over the lover must make use of similar means. Too many young women imagine that they need no longer study to please when they have secured a husband; that they need no longer wear a happy smile on his approach, nor study neatness and taste in their daily apparel, but on the contrary meet him at every turn with a peevish fretfulness, and with apparel in disorder and neglect. Think on these things, young women, and by acting on them you will secure happiness to yourselves as well as to your husbands; you will never regret it.

THE EYE.—The eye has five tunics to guard it against danger. The first is like a spider's web; the second is like a net, the third like a berry; the fourth is like a horn, and the fifth is the cover or lid of the eye. Here is guard upon guard, resembling the various ways Providence has to secure us from harm.

A farmer near Lowell undertook to make a plow himself, to save expense, and finally succeeded in making *something*, but it was so frightful looking an object, that he deemed it prudent to chain it to an apple tree, to prevent its doing any damage. Notwithstanding all his precautions, however, it got loose one night and killed two of his calves.

MARKING INK.—Take 6 pence worth of Lunar caustic, and having put it into an ounce phial full of vinegar, cork it tight and hang it in the sun. In a couple of days it will be fit for use.

To make the preparation for the above, take a lump of pearlash of the size of a chesnut, and dissolve it in a gill of rain water. The part of the muslin to be written upon, is to be wet with the preparation, and dried and glazed with a warm flat iron: immediately after which it is ready for marking.

Pa, what do potatoes have eyes for? So they can see to grow. Beans hasn't eyes, and they grow. Yes, but they grow wrong end up.

CATALOGUE OF AMERICAN PATENTS
ISSUED NOVEMBER, 1845.

To David B. Rogers, of Stafford, N. Y., for improvement in cultivator teeth—Nov. 1.

To James Brown, of Newark, N. J., for improvement in firemen's hats—1st Nov.

To Jordon L. Mott, New York, for improvement in coal stoves—1st Nov.

To James P. Ross, of Lewisburg, Pa., for improvement in mills for cutting and grinding corn in the cob—1st Nov.

To Thomas Mussey, of New London, Conn., for improvement in the mode of operating cart-bodies—1st Nov.

To Andrew Weikart, of Green Village, Ohio, for improvement in boring machines—1st Nov.

To John White, of Marshall, Michigan, for improvement in writing-desks and table combined—18th July.

To F. D. Parmelee, Akron, O., for improvement in tanning—1st Nov.

To William Dunning, of Dunningsville, Pa., for improvement in the mode of operating brakes for carriage-wheels—1st Nov.

To William Mills and Mahlon Hoar, of New Athens, Ohio, for improvement in fracture apparatus—8th Nov.

To Russell Wildman, of Hartford, Conn., for improvement in hatters' kettles—8th Nov.

To Moses Pierce, of Norwich, Conn., for improvement in bleaching apparatus—8th Nov.

To Daniel Harrington, of Philadelphia, for improvement in the manner of constructing the ink-stand—2d Sept.

To Nathan Buttrick, jr., of Chelmsford, Mass., for improvement in machinery for making lead pipes—8th Nov.

To John B. Chollar, Eber Jones, and Peter Low, of Troy, N. Y., for improvement in cooking-stoves—8th Nov.

To John W. Baker and William W. Riley, of Columbus, Ohio, for improvement in instruments for extracting teeth—8th Nov.

To Almon Downs, of St. Clair, Michigan, for improvement in sash machinery—8th Nov.

To John Ball, of Greentown, Ohio, for improvement in ploughs—8th Nov.

To Joseph Johnston, of Wilmington, Del., for improvement in snuff machines—9th Sept.

To David B. Rogers, of Stafford, N. Y., for improvement in dies for cutting and forming cultivator teeth—8th Nov.

To Thaddeus Hyatt, of New York, for improvement in vault covers—12th Nov.

To John Miner and Silas Merrick, of Fallstown, Penn., for improvement in machinery for dressing staves—12th Nov.

To James Biggs, of New York, for improvement in tenoning machines—12th Nov.

To R. Peck and J. W. Cochran, of Attica, New Y., for improvement in cooking stoves—12th Nov.

To Henry Isham, of Montpelier, Vt., for improvement in locks for safes, &c.—12th Nov.

To Chas. Thurber, of Norwich, Ct., for improvement in writing machines—18th Nov.

To Christopher Suydam, of Lambertsville, N. J., for improvement in bee-hives—18th Nov.

To Christian V. Queen, of Peekskill, N. Y., for improvement in forges—18th Nov.

To John Porter, of Gettysburgh, Pa., for improvement in cooking-stoves—18th Nov.

To Marmaduke Osborne, of New York, for improvement in the mode of forming hat-bodies—18th Nov.

To Levi B. Thyng, of Lowell, Mass., for improvement in hanging car-bodies—17th May.

To John Tatham and David Cheetham, of Rochdale, England, for improvement in the mode of laying roving in cans: patented in England 14th March, 1845.

To James Bogardus, of New York, for improvement in shurring machines—21st May.

To John Plant, of Washington, D. C., for improvement in curing smoky chimneys—21st Nov.

To James Bogardus, of New York, for improvement in machines for cutting India rubber into shreds—21st May.

To Alexander Anderson, of Paterson, N. J., for improvement in the mode of steadying the live spindle—21st May.

To Wm. F. Senior, of New York, for improvement in the construction of bottoms for pianofortes—21st Nov.

To J. E. Andrews, of Boston, for improvement in planing machines—2st Nov.

To Eli C. Robinson, of Troy, N. Y., for improvement in cooking stoves—30th Aug.

To R. F. Loper, of Philadelphia, Pa. for improvement in the mode of elevating and depressing propellers of steamvessels—26th Nov.

To Wm. Dripps, of Coatesville, Pa., for improvement in water-wheels—26th Nov.

To Nathaniel Rider, of Worcester, Mass., for improvement in bridges—26th Nov.

To George Faber, of Canton, Ohio, for a magnetic water-guage for boilers—26th Nov.

To R. F. Loper, of Philadelphia, Pa., for improvement in steam engines—26th Nov.

To Stephen R. Parkhurst, of New York, for improvement in shipping and unshipping propellers—26th Nov.

To Grey Utley, of Chapel Hill, N. C., for improvement in Washing-machines: patented 26th November.

To Patrick Gallagher, of Chambersburg, Pa., for improvement in plough-clevises: patented 26th November, 1845.

To Josephus Echols, of Columbus, Ga., for improvement in propelling canal boats, &c.: patented 26th Nov.

To Abraham A. Bogardus, of Newburgh, New York, for improvement in tailors' measures: patented 29th November.

To Wm. Butcher, of Philadelphia, for improvement in the ash-pit of stoves: patented 29th November.

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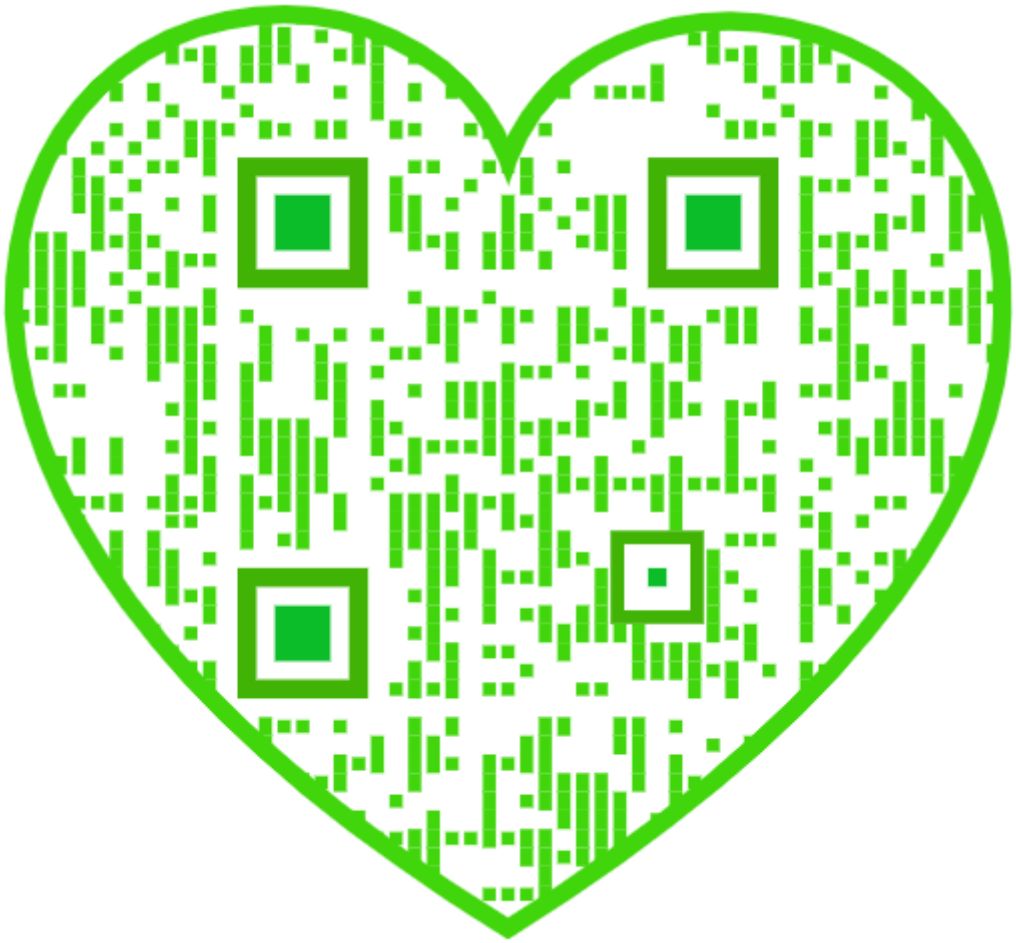
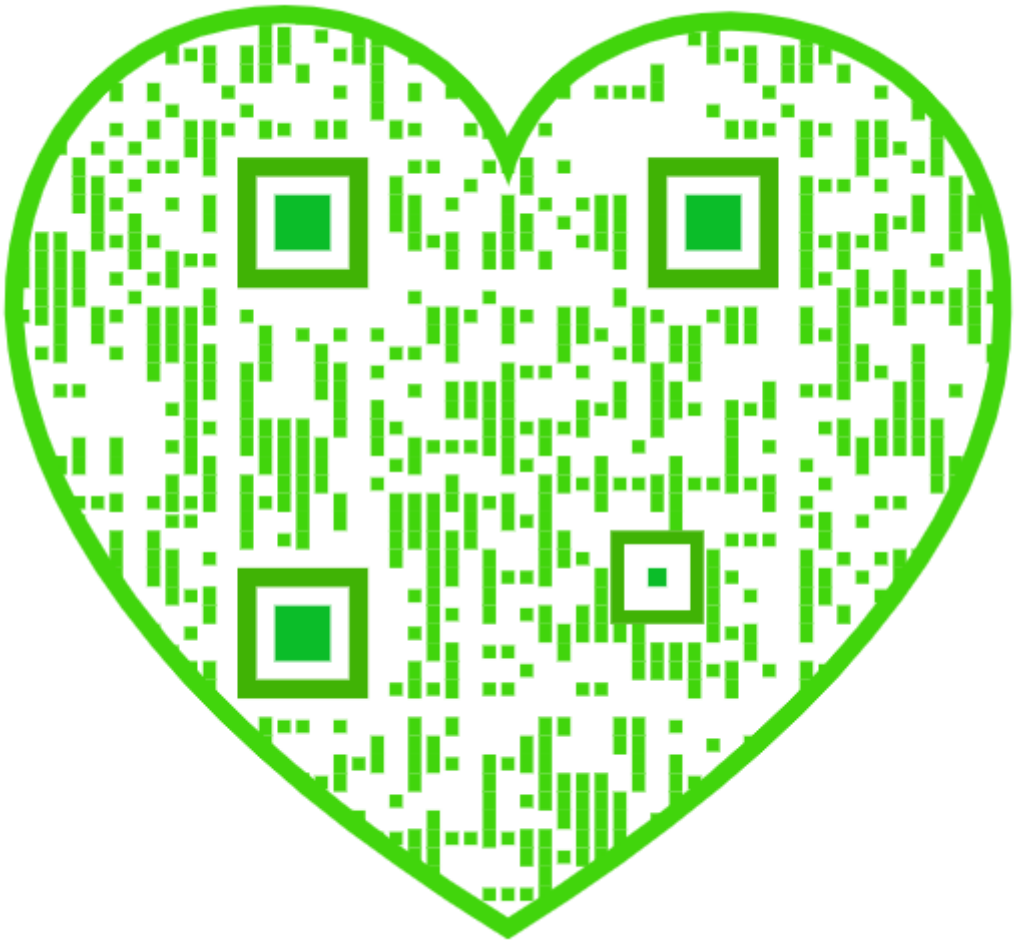




SCIENTIFIC AMERICAN

NEW-YORK, THURSDAY, DECEMBER 25.

To Correspondents.—We have such a press of material on hand that we cannot do justice to our correspondents always at short notice. The problems of A. H. G. will soon find a place.—The original poetry by 'Elda' was too late for this number. Any thing scientific, or allied to the progress of improvement will be acceptable.—We can not furnish an engraving of the project of P. V. S. immediately.—"Clinton" must not be impatient. W. H. W. will appear in our next.

Hotels and Reading-rooms.—Being desirous of having this paper more extensively seen or heard of we have decided to furnish it to hotel keepers and reading rooms for one dollar per annum, being half the regular price. If our generous cotemporaries will do us the favor to give a two line notice to this effect, we will acknowledge the favor with true gratitude.

Science of Mechanics.

(Continued from No. 14.)

Inertia and Momentum.—It is generally understood that momentum consists of force accumulated, and that it constitutes power; because a ponderous body, when in motion, has a tendency to put in motion whatever comes in its way; but that the inertia of a body at rest constitutes no power, but merely resistance, although it may retard the motion, or change the direction of other bodies in motion. But it is readily proved that the inertia of a body, apparently at rest, constitutes as much actual power, as one in apparent motion. For if a ball were projected from a gun, in a direction contrary to the motion of the surface of the earth, and with equal velocity, the ball would then remain at rest although it would apparently move with immense velocity, and put every thing in motion, with which it came in contact; we should instantly lose sight of it for 365 days, when it might again strike the earth, or rather, the earth might strike that. There is then, in this view of the subject, no distinction between power and resistance, or momentum and inertia, only with regard to the motion of one body, relative to that of another. Experiments on momentum may be made most conveniently, by a nicely adjusted small fly-wheel; its velocity being more easily ascertained, than that of a body projected, or in rectilinear motion. Let a fly-wheel be mounted on a horizontal shaft, running on points with as little friction as possible, and elevated five or six feet from the floor;—wind a small cord round the shaft, and attach to the end of the cord a weight of one pound:—let the weight descend, thus putting the wheel in motion, and mark the number of revolutions of the wheel in a given time—the cord being so adjusted to the shaft, as to be detached therefrom at the instant the weight reaches the floor.—Then again wind on the cord, and attach a weight four times as heavy as the first, and repeat the experiment: you will observe the velocity of the wheel to be double to what it was at the first trial. In either case, if the cord remains attached to the shaft, the weight will be re-elevated nearly to the point from whence it descended: thus proving the momentum to be equal—minus friction—to the resistance of inertia. A common size of fly-wheel for regulating the motion of machinery, is eight feet in diameter, and weighing 800 lbs. An ordinary velocity of such a wheel may be about 100 revolutions per minute. Yet the regulating power of this wheel with this velocity, may be equalled in every respect, by a little wheel but *one* foot in diameter, and weighing but 50 lbs., with a velocity of 3200 revolutions per minute. This fact is startling, but is, nevertheless a fact, and the small wheel with a quick motion should supercede the awkward and expensive large and ponderous fly-wheels generally.

To be continued.

The New York Post Office.—The number of letters which passed through the Post Office on Saturday last was 45,053; of which 17,103 were brought by the Acadia. Upwards of 500 *bushels* of newspapers also, were received and assorted on the same day. The business of the Post Office moves with the regularity of clock-work; there is no such thing as complaint from any quarter, and nothing short of an approach of fire could disturb its systematic course.

Correction.—We stated in our last number that *we were informed* that Mr. Ellsworth, former Commissioner of Patents, was assisting Mr. Burke in the preparation of the "Commissioner's Report" for the present year. We had seen the statement in several papers, and thought the circumstance indicated, on the part of Mr. Burke, an agreeable independence of political party spirit. We are now authorised to say, however, that *there is not the least foundation for the report.*

Where is Thompson?—We mean Mr. S. Thompson, newspaper agent, &c., of Worcester, Mass. We have written several *pressing* letters to his address, but have not succeeded in drawing the least response. Will some of our Worcester readers please inform us whether he is dead, or has only lost his speech.

Temperance Pies.—An Eastern temperance paper, lately attempted to deride those ladies who would not eat *mince* pies without brandy. The best of the joke was, that the compositor omitted the *n* in the word *mince*, which made the article speak of a dainty which would hardly be relished without brandy, even by a temperance man.

The Mormons.—It is said that the Mormons are preparing 5000 waggons for their removal to California. It is calculated that the caravan will extend twenty-five miles in length. In the front is to be a press and types from which will be issued every morning, a paper, to be sent back to inform the rear guard what is going on in the van!

The art of Painting.

(Continued from No. 14.)

Ornamental Painting.—We have already given instructions in several branches which might be considered under this head, such as bronzing, striping, and landscape painting. But what is more strictly understood by the art of ornamental painting, is that of painting pictures on signs, carriages, and banners. The colors used in this branch, are, in general, prepared the same as described for landscape painting, being ground in the purest boiled linseed oil, tempered with a due proportion of drying japan, or white vitriol, as occasion may require, for drying, and diluted with spirits of turpentine. In painting banners, the silk for that purpose must be drawn very straight on a frame, and the part or portion thereof that is to receive the painting, must be carefully and delicately sized with thin paste made of four parts of wheat flour, with one part of ising-glass and one of white bar-soap. If the silk is to be painted on both sides, the ornament should be so arranged as to occupy the same space on each side; though this rule is not always observed. A very thin ground-coat of white, may be laid on the sized part, and on this, the outlines of the picture may be drawn. The artist should calculate what particular colors are to be applied to each particular part of the ground, and apply each color to its place, so as to avoid loading any part with several successive coats, in producing the desired shade and color. The practitioner should be provided with a good variety of small brushes and sable hair pencils, round and flat, for applying the different colors: when two or more colors are to be blended on the work, they must be applied with different tools, and blended with a third,—a small flat sable pencil: and with a pencil of this kind, the surface of each coat and color may be smoothed, after having been applied by a stiff hair-brush or pencil. This rule should be observed also, in painting ornaments on carriages and fancy sleighs, or furniture; but in painting fancy signs, it is of little consequence whether the surface is smooth or how thick a body of paint may be laid on the work. If the tinting of a human face, or of flowers, or drapery, is required to be varied after the paint is too firmly set to admit of blending, it may be effected by applying, with a short flat sable pencil, a thin or partial coat of a deeper color than is required, but so graduated as to work semi-transparently, and improve the original color of the work. Such parts as are to be gilt or silvered, are to be sized and managed in the manner described in former numbers, under the head of sign painting, carriage painting, &c., the gold or silver being occasionally shaded with transparent colors. This work must be protected with a delicate coat of pure copal varnish, except the gold lettering on signs, which is generally allowed to retain its native brilliancy without varnish.

Transferring Prints.—Lithographic and other prints are sometimes used in ornamental painting, being transferred to the surface of painted grounds by the following process:—The ground is sized with a mixture of two parts of copal varnish with one of old linseed oil, or with an article sold at the paint stores under the name of "transfer varnish," which consists principally of diluted fir balsam: and the print to be transferred, is put into warm water.—When the sizing is nearly dry, but still adhesive, the print is pressed between two or more dry papers, to deprive it of its surplus moisture, and is then gently pressed—the print side down—on the sized ground. When the sizing is thoroughly dry and hard, the paper which adheres thereto, is again moistened with warm water, and being gently rubbed with the hand, will peel off, leaving the entire print adhering to the ground. This may be colored with transparent colors, and afterward secured by varnish. This work is frequently applied to fancy sleighs, fire engines, and omnibuses.

To be continued.

The Factory Girls of Lowell.—Of the 6,320 female operatives employed in the Lowell factories, about seven-eighths are natives of the New England States, and 515 have been teachers of common schools. 2,276 are church members, and 2,714 are connected with Sunday schools. The average wages earned, is about two dollars per week, besides board, though some earn double that sum.—They have nearly $1,000,000 in the Lowell Savings' Bank. They are not restricted to any particular houses, but select boarding where they prefer. The style of boarding is in general far superior to that of ordinary boarding houses in the large cities. We have been led to allude to this subject by observing in a Southern exchange paper, a scandalous article accredited to the "New York Morning News," in which it is stated that "the board of the girls is jobbed out by the factory agents like feeding so many cattle, and they receive their wages clear of board from the factories. Generally speaking, the board they get for the miserable factory allowance of seventeen cents per day, board and lodging, is such that a Southern negro would turn up his nose at. A girl now gets into the factories, and is confined fourteen hours, in an atmosphere so hot that her clothes are drenched in perspiration in the coldest days of winter. In this state of heat they must run from the mill to the house to a scanty meal," &c. From this statement the N. O. Jeffersonian takes occasion to speak of the condition of the factory operatives, as being "a thousand times worse than negro slavery in its most aggravated forms." It must be admitted, however, that both of these papers, in speaking on the subject, have entitled themselves to the credit of speaking very independently—the first of truth, and the other of common sense.

Repulsive Property of Heat.—It has recently been proved by experiment, that a lump of silver being heated to a glowing red heat, and thrown into a vessel of water, will so effectually repel the water to such a distance from the surface of the metal, that no ebulition will take place, while the brightness of the metal continues; and that if a metallic vessel be thus heated, and a small quantity of water thrown into it, the water will not be heated to the boiling point, till the temperature of the vessel has become reduced below the glowing red heat.

New Inventions.

Tobacco Machine.—A North Carolina paper speaks very favorably of a new machine for rolling tobacco, or making segars. No description of the machine is given, but it is confidently stated that three boys, with the use of the machine, will accomplish as much work as thirteen men by the old process. If this statement is within fifty per cent of the fact, the invention must be highly important to the whole tobacco chewing and segar smoking community.

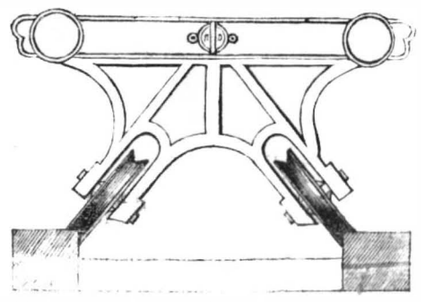
Improved Clock.—A watchmaker of Charleston, S. C., has invented a clock which is calculated to run a hundred years, by once winding up. It is said to be simple in construction, having only four wheels. The inventor evinces much ignorance, however, by declining to give a description of the invention under the frivolous plea that "it has not been patented."

The Invisible Door Spring.—This neat and excellent invention was made visible in our office yesterday; and although the machinery is invisible from either side when the door is closed, there is no lack of visibility in its effects and general utility. Mr. Seymour, of Chatham Square, is the sole agent for the sale of these invisibles, as may be seen by his visible advertisement in another column.

Improved Waterwheel.—Mr. Hiram Munger, of Chicopee Falls, Mass., has introduced an improved waterwheel which is highly spoken of by those in whose veracity and judgment we have the fullest confidence; and represented to give more power in proportion to the quantity and fall of water than any other in use. We shall probably procure a full description of the improvement in season to lay it before our readers next week.

A Talking Machine:—the very last invention. The Philadelphia papers announce the completion and operation of one of the most ingenious, as well as useless, inventions that has ever been attempted. It is an Automaton constructed with the organs of speech, so as to converse audibly and in different languages. We had supposed the report a sheer hoax, like many of its precedents, till we saw a brief notice of the invention in the grave U. S. Gazette. We have not learned the cost of such machines, but presume there will be a ready demand for them, at almost any price, by the many husbands who find themselves inadequate to maintain their own side of an argument with their ladies.

Prosser's Railway Guide.



This invention is particularly calculated for wooden rails, and is now in course of experimental operation on Wimbleton Common, England. The wheels represented in this cut are not the principal wheels of the car, or those which support the weight thereof; but are placed in front, and rear of the main wheels, and guide the car on the track, while the four supporting wheels, having broad rims without flanges, keep their even course on the top surface of the rails, instead of grinding down the edge of the rails, as in the case of the conical flange wheels on iron rails. These guide wheels are made strong enough, however, to sustain the weight of the car, in case of any accident happening to the main wheels; and it will be seen by their position on the rails, that it would be impossible for the car to be overturned or thrown off the track, while the rails remain firm in their places. If this invention succeeds well—and we see no reason why it should not,—it will lead to the introduction of cheap wooden rails on many short railroads, branching from the main lines to town villages and manufacturing establishments in various places where such accommodations have not been hitherto anticipated.

The Tariff Question at the South.—A manifesto, by one hundred and four planters of Mississippi, is published in the "Jackson Southerner," and is supposed to express the views of the planters in general, in that section, on the subject of the tariff. The manifesto presents various reasons for approving of the tariff of 1842, and concludes as follows: "Above all they are in favor of such a tariff as that of 1842, because they believe the interests of the manufacturers of cotton goods at the North to be identified with the interests of the grower of cotton at the South, and that as strength is added to these two great interests, the one at the North and the other at the South, so will strength be added to the bands which bind this glorious Union together; and they do most solemnly believe, that if the system of affording adequate protection to American industry be persevered in but for a few years, all the great interests of the country will become so blended and so dependant one upon another, that all attempts, whether of abolitionists or abstractionists, to destroy our beloved Union, will be laughed to scorn for centuries to come."

Illustration of the Principle of the Telescope.—Select two double convex lenses, one of which may be a common magnifying glass, whose focus is from one to two inches; and the other may be a common spectacle glass, of about twenty inches focus more or less. Place these two glasses at such a distance from each other as shall be equal to the focuses of both: bring the two to range with some distant object, and put your eye to the first glass so as to look through both: the object thus viewed will be brought so near, that its apparent distance will bear the same proportion to its true distance, that the focus of the first glass does to that of the second. Thus the true principle of the common spy glass or telescope is at once explained.

Galvanism.

(Continued from No. 14.)

Electro-plating with Gold.—A battery, consisting of five pairs, consecutively connected, is requisite for this branch; the font, wires, and pole-point, being the same as described in the preceding numbers. The solution for this font is prepared as follows:—Select a piece of deep colored French gold coin, and put it into a mixture of two parts of nitric to one of muriatic acid in a tumbler or glass flask, and let it remain till dissolved, or until ebulition ceases, which may require two or three hours. Take out the remaining gold, if any remains, and put a small quantity of the solution into a well glazed porcelain plate, and set the plate on a pan of sand, and that on a gentle fire of charcoal, in a situation from which the fumes will escape to the chimney. Attend to this solution closely, let it boil gently, and add more of the solution in small quantities, as it evaporates, until the whole of the acid is evaporated, leaving the gold in a reddish colored cake on the bottom of the plate. (If the plate should crack so as to leak during the process, the gold may be saved by washing the sand and evaporating the water.) The plate should be taken from the sand, however, before the gold is quite dry. Re-dissolve the gold in water, and add in small quantities, a solution of cyanuret of potassium, till the gold solution becomes clear and transparent. This solution, if well managed with good materials, will appear of a wine color. It may then be diluted with pure water in the proportion of a quart of water to each dollar of gold, and put into the font. The articles to be gilt or plated, must be well cleansed by being washed with a solution of potash, or soap, and rubbed with fine Spanish whiting, and may then be put into the font in contact with the negative wires,—the battery having been previously adjusted for action, and the positive pole-point dipped in the solution. If the action of the battery is strong, it will be indicated by an ebulition or frothing at the pole-point: and if any of the articles in process begin to turn black or brown, it indicates that the electricity is too powerful, and the article must be taken out and cleansed, by being brushed with whiting, and rinsed in water, and placed in the font at a greater distance from the pole-point: or the pole-point may be raised so as to dip more slightly in the solution. As a general rule, the articles which lie nearest the pole-point, will be coated with revived gold, the most rapidly; and, on this account, it becomes requisite to change the position of the several articles, frequently during the process. When the work goes on right, the articles in the font, at the distance of six inches from the pole-point, whether of iron, steel, silver, or German silver, will become beautifully coated with bright pure gold, in five minutes; but to become permanently plated for service, such articles as watch-cases, guard-chains, and pencil-cases, should remain in the font from one to three hours, according to the strength of the solution and the action of the battery. This process is for working fine gold only: but that for working compounds of gold, silver and copper together, in such proportions as to produce the beautiful and brilliant gold alloys, used for watch-cases, and various jewelry, will be given in future numbers. It may be here remarked, that in our illustrations of Galvanism thus far, we have restricted our descriptions to the first and most simple principles of the science, its apparatus and branches; but that we shall eventually present more minute descriptions of more nice and improved apparatus, and reach the higher points and branches, in the application thereof: it being contrary to our policy in teaching, to present the more nice and difficult points in the art, at the same time that the first principles are introduced.

To be continued.

Cupid's Telegraph.—It is stated that a new system of telegraphic communication has been started in England. Among the signals are the following: If a gentleman wants a wife, he wears a ring or diamond on the first finger of the left hand; if he is *engaged*, he wears it on the second finger; if *married*, on the third; and on the fourth, if he never intends to be married. When a lady is not engaged, she wears a hoop or diamond on the first finger; if *engaged*, on the second; if *married*, on the third; and on the fourth if she intends to die a maiden. When a gentleman presents a fan, flower, or trinket to a lady, with the left hand, it is an overture of regard; if received with the left hand, it is an acceptance of his esteem; if taken with the right hand, a refusal of the offer, &c. What a world of vexation and heart fluttering it will save.

A Worthy Example.—Mr. C., an eminent lawyer, and formerly a member of the Kentucky Senate, once remarked on the floor of that house, in a debate on the subject of Common Schools—"Sir, your superintendant in Common Schools has said that there are many men of family in this Commonwealth, who can neither read nor write, and it is but too true; my *own* marriage bond has my *mark* to it, and my son, who now sits in the other House, was a stout boy when I learned to read."

It is much to be regretted that so many thousands are still neglecting to learn to read, merely because they had passed the age of ordinary schoolboys before they had a convenient opportunity to learn. As far as we are able to judge from our own experience and observation, any man of tolerable capacity can learn to read and write at the age of thirty, in one tenth part of the time that is ordinarily required for those branches by children.

O! Franconia.—Who has not heard of Franconia, N. H., where thermometers will not operate without being warmed? On the morning of the 1st inst., the mercury fell at that place to 33 degrees below zero, and—*there it stood.*

Fires in the Woods.—The Arkansas papers state that destructive fires have extended several hundreds of miles, in that State and in the western part of Tennessee, consuming grass, cane, and undergrowth of all kinds, and filling the atmosphere with smoke too dense for respiration.

Variety

A splendid iron bridge is in progress of construction over the Monongahela at Pittsburg. The "Iron City" says the wire cables are all finished, and present a beautiful appearance as they hang from pier to pier over the water.

Another monster steamer, 340 feet long and 70 feet wide on deck, is in progress of building for the "People's Line." She is to be called the "George Washington," and be propelled by a 1500 horse-power engine.

The grand Russian railroad from St. Petersburg to Odessa will extend about 1,600 miles in length. By this road a person may leave the frozen climes in mid-winter, and in three days arrive in a region of sultry summer.

The Methodist Missionaries are about establishing a College in Oregon, and have already erected a building three stories high and 75 feet long for that purpose.

Upwards of 150 iron steamers have been built in England, some of which have been in use for 25 years. They are all said to be in good order, and have seldom required any repairs.

It is confidently anticipated by some, that in a few years the principal nations of Europe will depend on the United States, in part, for a supply of railroad iron.

Some young men have been amusing the people of Hanover by walking or running on the surface of water, by means of large buoyant *skies* of floats attached to their feet.

An iron house, 82 by 50 feet, has been erected in Philadelphia, for some manufacturing purpose. The walls and floors are of cast iron, the rafters of wrought bars, and the roof iron plate.

A large cotton manufactory is about to be started at Peoria, Ill. We can hardly expect that business to succeed so well in that section, as at the east or south.

The Audubons are getting up a work on the animals of America, in a style similar to that of the elder Audubon on birds. It will command an extensive sale both in Europe and America.

The ice dealers in Pittsburg, Pa., are filling up their ice-houses from the Allegheny river, which has been frozen for a few days past. It is thought they will not leave enough to skate upon.

The Merrimack Manufacturing Company at Lowell, have declared a semi-annual dividend of ten per cent. They have been fortunate in the selection of their location.

The flouring mills of Fort Wayne, Ind., are turning out 250 barrels of flour per day, and are expected to continue at the same rate through the winter. This looks like business.

At a recent auction sale in this city, a large number of shawls were sold at prices varying from $150 to $425. There were many ladies present, and the bidding was eager and brisk.

When the railroad through France to Marseilles is completed, the trip between London and Alexandria, in Egypt, will be accomplished in seven days. Steamers now take fifteen days.

It is somewhat loudly whispered that several of the jury who acquitted young Elliott at Washington, were among Elliott's particular friends. The case may again be overhauled.

A blundering printer, in setting up the sentence, "Shoot Folly as she flies,—*Pope*," made it read in the proof "Shoot Polly as she fries—*pop.*" He must have been thinking of Cupid's pop-guns.

The Detroit Advertiser states that one thousand tons of copper ore have been raised by the Lake Superior Copper Company and that valuable discoveries have been recently made in the mines.

The two strolling companies, the "Ethiopian Serenaders" and the "Sable Sisters," have become *united* by Mr. Booth, at the Mechanics' Hall in Salem, Mass. It must have been a great *wedding.*

The Mississippi river, at St. Louis, is frozen so that foot passengers cross it in perfect safety, and wild game from the opposite shore is carried over to the city in great abundance.

A quaint agricultural writer recommends the use of a bright plough as being vastly superior to a rusty one, which he represents to be poisonous to soils. Do you take, Farmers?

The Galena Gazette estimates the proceeds of the lead mines, the present year, at two millions of dollars.

The Sunday Times has taken the rational ground that the publication of crimes has an adverse influence on the morals of the community.

There is said to be more Malaga raisins consumed in the United States than in all the world besides. The Europeans in general give currants the preference.

A lady in Paris wears a ring made of iron which was extracted from the blood taken on some occasion from the arm of her husband.

A little girl in New Haven, has obtained ninety signatures to the teetotal pledge. A child may sometimes exert much influence.

The platina mines of Russia have yielded the value of $268,000,000 within the last twenty five years. We should expect to see it more plenty.

The Richmond Whig, in an able, well written article, declares its favorable feeling towards the gradual and judicious abolition of slavery in that State

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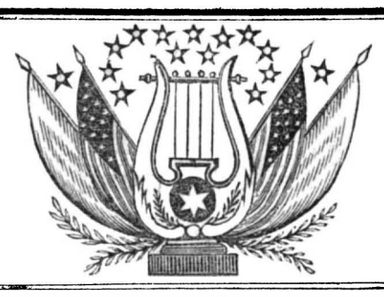


National Hymn.

My country ! 'tis of thee,
Sweet land of liberty,
Of thee I sing:
Land, where my Fathers' died;
Land of the pilgrim's pride;
From every mountain side,
Let freedom ring.

My native country! thee—
Land of the noble free—
Thy name I love:
I love thy rocks and rills,
Thy woods and templed hills,
My heart with rapture thrills,
Like that above.

Let music swell the breeze,
And ring from all the trees
Sweet freedom's song:
Let mortal tongues awake,
Let all that breathe partake,
Let rocks their silence break,
The sound prolong.

Our Father's God! to thee—
Author of liberty!
To thee we sing:
Long may our land be bright,
With freedom's holy light—
Protect us by thy might,
Great God, our King.

This World is not my Home.

This world is not my home, I see;
While o'er its hills and through it vales I roam,
To find some place where I at rest may be,
My labor all is vain—there's none for me—
This world is not my home.

This world is not my home, I find;
It offers much, but all is noise and foam,
Earth's fairest scenes and sweetest joys combined,
Cannot give rest to an immortal mind;
This world is not my home.

This world is not my home, I know;
But one is found in that bright world to come,
Where streams of purest bliss forever flow,
And living fruits on trees immortal grow—
This world is not my home.

This world is not my home, I say;
And here to struggle long is not my doom;
From this vain world I soon shall fly away,
To reign with God in one eternal day—
That world shall be my home.

Go to thy Play.

Go to thy play my little boy,
With bounding heart, while life is young;
I would not mar thy sunny joy,
Or hush the prattling of thy tongue.

To play, my child, before the day
Of evil thoughts and cares shall come;
I love to see thee always gay—
It adds a lustre to thy home.

Play on, while yet thy path is bright,
And thy heart loves the birds and flowers,
Long may such innocent delight
Remind me of youth's happy hours.

And may that God who reigns above,
And watches round thy bed by night,
Protect thee daily by his love,
And make thee precious in his sight.

Capital Punishment.

Think better of thy fellows—ye who dare
Stop the warm current of a brother's heart;
'Tis not to mark the death-damp of his fear
And mortal agony, when ye shall part
The soul from its strong tenement—not this—
Not this doth call them from their secret ways,
From haunts of crime, and nature's seats of bliss,
Toil-worn and travel-stained for many days;
No! even we in chambers pent, like them,
Feel the wild anguish of a fellow's pang—
The pleading of a pulse, which you condemn,
That calls us forth as if a bugle rang.
The wronger is the wronged, such impulse lies
In every human heart when *thus* a brother dies.

TECHNICAL ORDERS.—"Now, Jim," said the printer of a country newspaper to his apprentice, "put the Foreign *leaders* into the *galleys* and *lock them up*,—let the hydrargos' have a larger *head*,—*distribute* 'the Texian forces,'—take up a *line* and finish the anti-mormons,'—make 'the American Deer' to run on with the 'new locomotive,'—remove the 'Hunters of Kentucky' out of the *chase*,—get your *stick* and complete the 'horrid murder' that Joe commenced last night,—set aside the *rules*, and bring up the new *cases*, and let Joe examine the *proof*,—and after breakfast see that all the *pi* is cleared up, and let the *devil* carry off the *scraps*.

AS GOOD AS AN IRISHMAN.—An Irishman in Philadelphia wishing to keep a *wake* on the occasion of the death of his wife, rang at the door of a house adjoining that of a wealthy Irishman, and solicited a little pecuniary aid for that purpose. The gentleman of the house, to whom the application was made, supposing he had mistaken the house, politely informed him that the Irish gentleman resided in the next house. "Oh," said the petitioner, "that don't make any difference; I'd as soon have something from you as from him. Give me any thing you please—I'll not be offended; for I think *an American is just as good as an Irishman!*"

THE BOOK OF WEALTH.—This work consists of an abstract of the biography of persons in this city, whose wealth exceeds $100,000. The ninth edition being exhausted, a tenth is announced as forthcoming, "revised and improved." We are glad to hear of this revision, as we have been unaccountably overlooked in the first nine editions.

Foreign News.

The Steamship Acadia arrived at Boston on Friday last, fifteen days from Liverpool via Halifax.

In looking over the news by this arrival, we find nothing particularly interesting to any but those who have endeavored to get up a war excitement, although the news has been announced in some of the papers as "highly important." The mass of the English people appear satisfied that there is no prospect of a war between England and the United States, as long as true policy and common sense has an influence on either of the two Governments.

During recent violent tempests off the coast of Norway, eleven pilots lost their lives in attempting to board vessels in want of their aid.

The disaffection among the subjects of the Roman Pontiff appears to be on the increase; the prisons being nearly all full, and the general police doubled.

The new religion of Ronge continues to make progress in all directions. The church of Rome, now thoroughly frightened, is taking measures to oppose it.

The King of Prussia has issued a circular protesting strongly against reports that he was favorable to the emigration of Prussians to the United States. He is strongly opposed to such emigration, recommends the people to keep at home, telling them they can find occupation enough in the Western provinces.

The Russian government has issued a new decree to increase the difficulties of emigration from that empire. A Russian subject who desires to make a tour of Europe must be 21 years old, pay £38 to the government, and produce a certificate of morality, besides, he is obliged to engage himself to come every two years into Russia. If those formalities are neglected, the estates are confiscated.

A letter from Moscow, of Nov. 4, states that an order of the Emperor has been published, interdicting, under severe penalties, the employment of children of and under twelve years of age in factories, where work is done from twelve o'clock at night to six in the morning, such labor being, says the order, beyond their strength.

ANOTHER NOBLE EXAMPLE.—It is stated in a Southern paper that Mr. Johnson, Member of Congress from Tennessee, was bred a mechanic, and that *his wife taught him how to read after they were married.* His abilities and influence as a statesman are now worth those of a dozen of the sons of luxury, who have received collegiate educations at the expense of their nabob fathers. Let mechanics remember this.

A TALL CHIMNEY.—There is a chimney attached to a soda-ash manufactory, near Liverpool, England, which is 45 feet in diameter at the base, and *four hundred feet high.* It is nine feet in diameter at the top, and required nearly 4,900,000 of bricks in its construction.

VERY ACCOMMODATING.—A Philadelphia paper relates an anecdote of a good natured uncle, who, having an extra-long nose, was politely requested by a drover, whom he met on the road, to turn his nose a little one side, till his drove of cattle got by. Not at all offended, the old man rode up to the wall, by the road-side, and held his nose over till the cattle were fairly beyond him, when the driver, with a a low bow, thanked him for his courtesy, and passed on.

THANKSGIVING IN WISCONSIN.—*Wednesday*, of last week, was observed by the appointment of Gov. Dodge, as a day of thanksgiving in Wisconsin. The Yankee emigrants to that Territory, think it very wrong to keep thanksgiving on any other day than Thursday. It is supposed the Governor intended to appoint Thursday, but having procured a new almanac for '46, in which the 17th December is shown to occur on Thursday, the appointment was made accordingly.

LIBERALITY TO SLAVES.—A wealthy gentleman named Nicholas Worthington, died a short time since in Howard District, Maryland. He was the owner of a large number of slaves, all of whom were manumitted by his will, with the exception of five superannuated negroes, who are to live upon either of two estates mentioned, as they may choose, and who are to be supported without labor the remainder of their lives. The slaves of sixteen years of age are to be free in six months.

LIFE INSURANCE.—Some of the Life Insurance Companies are doing large business. One in this city has issued 450 policies, and received in premiums $45,000 within six months. It is in fact, getting to be "the fashion" for married men to get their lives insured, and the most effectual method whereby a man in moderate circumstances can secure a competence for his wife and children, is to get a policy of life insurance, and then jump overboard.

FUTURE NUMBERS.—We have on hand, or in course of preparation, a variety of intelligence on points of excellence and improvements in the arts of architecture, carpenter work, blacksmithing, cabinet making, carriage and sleigh making, harness making, iron and brass founding, clock making, and in the manufacture of guns, pistols, locks, and various machinery. We shall proceed to a full illustration of the principles and management of Morse's Magnetic Telegraph in a week or two, and shall then resume the subject of Chemistry, if not before. Our engravers are employed on some very important and interesting mechanical inventions, and we have full confidence that our paper will improve as it progresses, and that the volume will be worth double the original price, when completed.

PRAYER INTERRUPTED.—A correspondent of the Newark Daily Advertiser states that the entire roof of the Williamstown College, Massachusetts, fell in while the students were attending prayers, on Tuesday morning, and the whole upper story, of course, left a mass of ruins. The damages are supposed to amount to at least $1000.

Railroad Intelligence.

The Great Western Railway of Canada, appears likely to be carried through with energy. It is to commence at Windsor, opposite Detroit, and extend through London to Hamilton, a distance of 190 miles, and probably continued to Niagara. The entire stock, $600,000, has been taken up by a few leading capitalists of England, and 15 per cent. has been already paid in. Operations are expected to commence immediately, and the whole is to be completed in from two to three years.

The Northern Railroad on the Connecticut river, is completed as far as Northampton, and the cars are making their regular trips daily.

Notices have been published of the intention to apply to the Legislature of New York for the incorporation of companies to construct a railroad from Schnectady to Catskill, and another from Schenectady to Utica, on the south bank of the Mohawk.

A survey has been made of a route for a railroad from Fitchburg, Mass., through Leominster, to intersect with the Worcester and Nashua road, near Sterling.

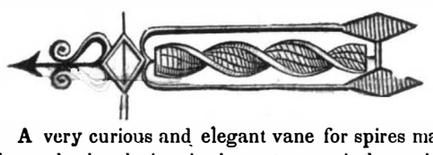
The Harlem Railroad is to be extended to Hartford, Ct., via Danbury, and intersecting the Housatonic railroad a few miles north of Bridgeport. It is matter of astonishment, that this route has met with so little favor, and been neglected with so much indifference, being evidently destined to take a considerable share of the travel from Boston and Albany, as well as that from the Connecticut river valley.

"A ROMANTIC TALE SPOILED.—An affecting story of Mr. ——, a bankrupt Philadelphia merchant, is wending its way on its round through the press. After his failure, his wife presented him with a Bible containing a ten dollar note between every two leaves; she had saved ten dollars, from expenses, every week for five years, and the proceeds of her economy, $9,000, enabled her husband to recommence business. Pity 'tis *not* true. The savings from Genesis to Revelations, could only, in five years, have amounted to $2,600.—Arithmetic and romance never could agree."—[*Alb. Knick.*

Now Mr. Knickerbocker, isn't that a good one? Pray how do you know what particular edition of the Bible was used as a depository of the money: whether a folio, or a pocket edition four inches thick? Answer that.

A DELINQUENT.—The Massachusetts Ploughman enquires where *Liberty Aldrich* is gone; and advises other publishers not to trust him. He may as well advise them all to adopt the *cash system;* for there are thousands who will not pay in advance for the *best* paper, while they can get a worthless one on credit. This credit publishing is an injury to the business, and those who practice it, should not complain at losing a few.

A Sparkling Vane.



A very curious and elegant vane for spires may be made, by placing in the centre, a spiral or twisted spindle, as shown in the above cut. This spindle should be hung on delicate pivots, and the spaces between the spiral flanches nearly covered with small pieces of looking-glass, or polished metallic plates. The least breeze will put it in motion, and as the reflectors will assume every possible position, several of them will be sure to present the reflection of the sun at every revolution, from whatever point it may be viewed, thus producing a constant and very brilliant sparkling.

If the Scientific American don't come to our sanctum in "duplicate" as he "used to did," we shall give his *Porter* such a dilutionary dash of the CATARACT, as will make it foam like a tankard of "brown stout" from the London breweries!—*Worcester Waterfall.*

Cease your roaring, Mr. Waterfall. We have *duplicated* you every week thus far: but as some of your 'Sci. Ams.' have probably been detained by some P. O. boy, who has learned to know good from evil, we shall send herewith a little peck of them, If you have any to spare, circulate them among the less fortunate.

UTILITY OF A BAROMETER.—Before the late gale on Lake Michigan, Captain Fearing, who was running down the Lake in his beautiful vessel, the Maria Hilliard, with a full cargo for Buffalo, upon consulting his Barometer, found that the mercury was falling unusually fast. Perceiving this, and exercising a wise caution, he immediately put back, and made our port just before that terrific gale commenced, in which the Major Oliver and another craft went ashore, and which did a large amount of damage to vessels not in port.

THE BOSTON STAR.—A paper, bearing this title, has been for some weeks past, published in Boston by the far-famed Corporal Streeter, formerly editor of the Richmond (Va.) Star. Were the corporal like *what he used to was*, we should have no objections to exchanging with him; but when natural vivacity becomes vinegarized by old age, or otherwise, though, like full ripe cucumbers, it may appear like *pun*-kins in the distance, it proves *pun*-gent and *pun*-ishmental when familiarly examined.

DEEP SNOW.—The snow is said to have fallen at Martha's Vineyard last week, to the depth of three feet, and the roads were quite impassable. The inhabitants of that island, having been much accustomed to staying at home, will not feel greatly incommoded thereby.

CHEAP ENTERTAINMENT.—Mechanics and others who occasionally visit this city, will find every thing desirable in the eating line, in the best style and lowest prices, at Johnson's Dining Saloon, No. 144 Fulton st. Call and try it.

ONLY ONE, IF YOU PLEASE.—Some of our cotemporaries frequently send us duplicates; we thank them for their liberal motives, but we nave no occasion for more than one copy.

The Magnetic Telegraph.

We are informed that the stock of the New York, New Haven, and Boston line, has been all taken up, and that arrangements are in progress for putting it in operation in the spring.

Arrangements have been completed with the Philadelphia, Wilmington, and Baltimore Railroad Company for the extension of the telegraphic line over their road between Baltimore and Philadelphia. This line is expected to be completed sometime in January, though we have no assurance to that effect.

The line between Philadelphia and New York is expected to go into operation next week.

The wires used for the Magnetic Telegraph averages about 170 lbs. to a mile. It will of course require not less than 500 tons of copper wire to supply all the lines contemplated in the United States.

For the Scientific American.

"BOSTON, Dec. 22, 1845.

"MR. EDITOR,—Sir,—The writer of the article under the heading of 'Science of Mechanics,' in your paper of the 18th inst., in speaking of the power applied to the apple, thrown in the railroad car, says, that three times as much power is applied to the apple, when it is thrown in the direction which the car is going, as was required to give it its first velocity. He here merely asserts a fact, without giving any explanation, of what he admits to be very incomprehensible. To me it is quite incomprehensible, and I think it is to most of your readers. Will he, therefore, explain why 'three times the power is applied,'—to oblige me, and I think many others,—as every thing in Mechanics should be understood. An explanation will oblige me very much, as I have long been studying Mechanics in that particular point. Success to the Scientific American. AN INVESTIGATOR."

We supposed that this point had been sufficiently demonstrated in a former number. We are ready, however to add some additional illustrations, for the satisfaction of "an Investigator," first admonishing him, however, against the supposition so plainly manifested in the forgoing communication, that any other person than the editor, is employed to write any of our scientific articles. We will suppose then, that the man and the apple are of equal weight, and that the floor of the car on which the man stands is covered with ice, so perfect that the friction between his boot-soles and the ice would be imperceptible. The quantity of power (not force) requisite to put either the man or the apple in motion, with a velocity of one mile per minute, we will call *one power.* It will be admitted that this *one power* must have been exerted in putting the apple in motion, along with the cars: also that another *power* must have been exerted in putting the *man* in motion. Two powers are thus already expended: and now if the man exerts simply one power more on the velocity of the apple, that velocity will not be doubled, because a part of the force will have been expended in re-action, retarding the velocity of the man as much as it increases that of the apple. The man must therefore apply double the power, or two powers—though no additional force—to double the velocity of the apple, while he himself is deprived of motion and left stationary. Therefore, although *four powers* have been expended, the only result is a *double* velocity of *one* object, that is, the apple.

THE CHEROKEE ADVOCATE.—This truly interesting paper is published at Tahlequah, Cherokee Nation. This paper is, strictly speaking, published by the Cherokee Nation, but edited by William P. Ross. It is printed partly in English and partly in the Indian character. We do not fully understand the reason why the Cherokee language might not as well have been put into the Roman and Italian characters, since the Cherokees had no alphabet of characters of their own. The paper, however, is very intelligent, and we should expect that it would be patronized by thousands of philanthropic Americans, who feel, as well as profess an interest in the improvement and welfare of the original inhabitants of the American soil.

THE WEEKLY MESSENGER.—Under this title, the interesting paper, heretofore known as the "Literary Wreath and Factory Girl's Garland," appears as a full sized and well printed weekly paper, well filled with stories, news, anecdote, and poetry. It is edited and published by A. R. Brown, Esq., at Exeter, N. H., and is just the paper we should recommend for the use of families: and as the terms are moderate—$1,50 per annum only—we hope our readers will many of them order the Messenger immediately, and secure the numbers from the commencement.

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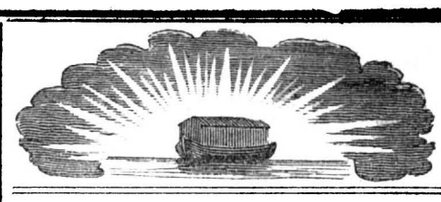
THE YOUTH'S CABINET, is the title under which appears the first number of a new and excellent monthly magazine, containing a variety of elegant engravings and a piece of select musick, yet afforded for only one dollar per annum. This work, though new in its present form,—the number before us being No. 1 of Vol. 1,—is properly a continuation of the popular favorite which has heretofore been published in the newspaper form. It cannot fail of extensive patronage, though, perhaps, not equal to its merits. Published by D. A. Woodworth, Clinton Hall, 135 Nassau st.

RUM AND PITCHFORK.—A physician in Thomaston, Me., being called on to visit a sick man, was somewhat surprised to find a large pitchfork standing by the head of the sick man's bed. His curiosity was excited at so strange an appearance in a sick room, which led him to inquire the cause, which proved to be, the brute of a man had made use of the fork to compel his wife to bring him the rum-bottle.



Christmas.

This day is called Christmas, a day set apart and observed by thousands of Christians, as a day of adoration, in commemoration of the first advent of our Savior; and by hundreds of thousands, as a day of useless, ceremonious practices, feasting, revelling, and crime. The observance of this day, probably originated with the Roman Catholics, for the purpose of advancing the popularity of that church, and was supposed to be the anniversary of the day on which our Lord was born, although there is but little evidence that this is the same day. But as that was an event, of all others, since the creation, the most interesting to mankind, and one which drew forth shouts of joy and songs of praise, from angellic hosts, it seems very proper to set apart one day in the year, in commemoration thereof; and no other day may be more suitable for this purpose, than the one which has been observed and set apart for centuries, as the anniversary of that event. But let those who will regard this day, regard it with exercises of devotion, gratitude, and adoration; but by no means insult that glorious Being, by profaning *this* day, by the indulgence of those practices which are known to be opposed to the principles of the gospel, and the glory of its Divine Author.

GOD'S LOVE.—Do we sufficiently realize the goodness of God? He has so loved us, that he came into the world in the person of the Son, and gave his own life for us. How few of us would die even for those whom we love best! And yet Christ died for us!—How highly, then, should we prize such love! And in return, we should give the warmest affections of our hearts. The only name given under heaven among men whereby we can be saved, is the name of Christ Jesus. If any would be saved by any other name, they will fail. Our own righteousness, or merits, will weigh nothin the scale.

"All are yours, and ye are Christ's." Such is the glorious promise to every child of God. Glorious promise. Who will attain unto it? Christians are not their own—they are Christ's. *He* has bought them with a price—having purchased them with his own precious blood. If Christians are Christ's, they should render to him the tribute due.

THE HEAVEN OF THE BIBLE.—It is not sufficiently adverted to, that the happiness of Heaven lies simply and essentially in the well-going machinery of a well-conditioned soul; and that according to its measure, it is the same in kind with the happiness of God, who liveth for ever in bliss ineffable, because he is unchangeable in being good, and upright and holy. There may be audible music in heaven; but its chief delight will be in the music of a well-poised affection, and in principles in full and consenting harmony with the laws of eternal rectitude. There may be visions of loveliness there; but it will be the loveliness of virtue, as seen directly in God, and as reflected back again in family likeness from all his children. It will be this that shall give its purest and sweetest transports to the soul. In a word, the main reward of paradise is spiritual joy; and that, springing at once from the love and the possession of spiritual excellence. It is such a joy as sin extinguishes on the moment of its entering the soul: and such a joy as is again restored to the soul, and that immediately on its being restored to righteousness.

SOME OF THE MYSTERIES OF THE NUMBNR SEVEN.—The Savior spoke 7 times from the cross, upon which he remained 7 hours. He appeared 7 times afterwards. In 7 times 7 days he sent the gift of the Holy Spirit. In the Lord's prayer are 7 petitions, contained in 7 times 7 words. In the Apocalypse we read of 7 churches, 7 candlesticks, 7 spirits, 7 stars, 7 trumpets, 7 plagues, 7 thunders, vials, and 7 angels to pour them out upon the headed monster Anti-christ, &c.

THE APPLES OF SODOM. ~~In the Crescent and~~ Cross we find this passage:—On resuming our desert path we picked up some apples of Sodom, that lay strewn upon the desert, without apparent connection with any stem; they are of a bright gold green, about the size of an orange, but perfectly round and smooth; they give the idea of being swelled out with the richest juice, that when bitten, must gush forth to meet the thirsty lip; you crush this plausible rind, however, and a cloud of fœted dust bursts forth which leaves only a few cinders as a residue.

HUMILITY.—A right frame of mind is always an humble one. All that man can do will amount to nothing, unless God shall give the increase. Those who boast of their own efforts, have yet to learn their own littleness.

VALUABLE INTELLIGENCE.—We feel confident in saying that this volume of the Scientific American, will, when completed, contain more really useful intelligence than could be procured from ordinary sources for one hundred dollars. We, with many others, paid fifty dollars each, in cash, for instruction in the art of *electro-plating*, yet without obtaining half so much intelligence, on that subject, as is given in these columns. One gentleman informed us that he paid a ten dollar bill for the information contained in a single article, which has appeared in this paper. Another, after taking a single number, immediately returned for the back numbers, averring that the one paper was worth ten dollars to him. What sensible young man will then prefer the flash, trash of the day, to solid useful information.

BACK NUMBERS.—We have already stipulated with printers and engravers, for supplying the cuts and re-printing the eight first numbers of this paper, and shall probably be able to furnish them to subscribers in the course of next month.

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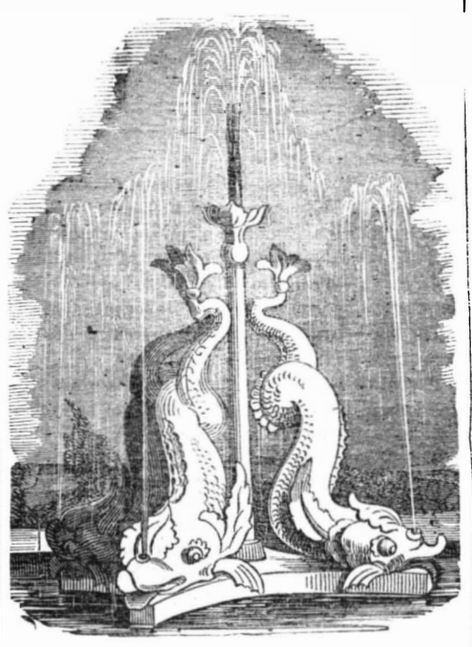

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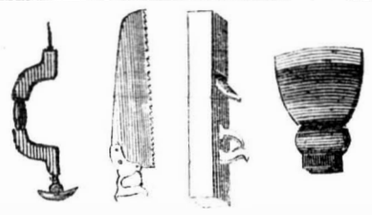

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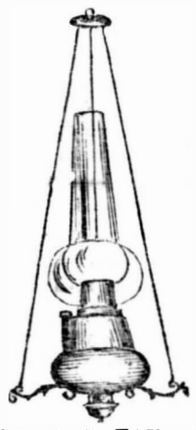

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THESE LAMPS have become universally celebrated and admired by all who use them. for their neat appearance and splendor of light; they are, in fact the most perfect lamp ever invented for camphene or chemical oil. Try all others, but don't fail to try the best, the cheapest, and, above all, the lamps that will give the greatest light with the least expense; they are the most simple and easy to manage and trim; cannot corrode or become heated while burning; easily cleaned inside and out, and not affected by a draft. They are perfectly safe to use at all times, as an oil lamp. Less than half a cent per hour will give you a splendid light! "TRY ONE."

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" Chicken,	18d	Veal Pie,	6d
" Duck,	18d	Beef Steak Pie,	6d
" Beef,	6d	Chicken Pie,	12d
" Pork,	6d	Mush and Milk,	6d
" Veal,	6d	Rice and Milk,	6d
" Lamb,	6d	Lamb Pot Pie,	6d
" Pig,	12d	Fried Fish,	6d
Boiled Chicken,	12d	Fried Clams,	6d
" Mutton,	6d	Ham and Eggs,	12d
" Corned Beef,	6d	Chicken Soup,	6d
" Pork,	6d	Beef Soup,	6d
" Fish,	6d	Coffee,	6d

Dessert.

Suet Pudding	6d	Mince Pie,	6d
Indian Pudding,	6d	Apple Pie,	6d
Rice Pudding,	6d	Peach Pie,	6d
Plum Pudding,	6d	Plum Pie,	6d
Bread Pudding,	6d	Pumpkin Pie,	6d
Apple Dumplings,	6d	Custard Pie,	6d

Breakfast and Tea.

Beef Steak,	6d	Hot Corn Bread,	6d
Veal Pie,	6d	Indian Cakes,	6d
Mutton Chops,	6d	Boiled Eggs,	6d
Ham and Eggs,	12d	Fried Eggs,	6d
Fried Tripe,	6d	Toast,	6d
Fried Sausages,	6d	Hot Muffins,	6d
Fried Fish,	6d	Hot Rolls,	6d
Fried Clams,	6d	Tea,	3d
Fried Liver,	6d	Coffee,	3d

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WIRE WINDOW SHADES,
do. FIRE SCREENS,
do. GRATE do.
do. HALL AND OTAER DOORS, &c.

MANUFACTURED to order, in great perfection, of any size or shape, and elegantly painted with any Landscape, Lettering, or other devices or colors required.

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They admit a full view to the street from the room.
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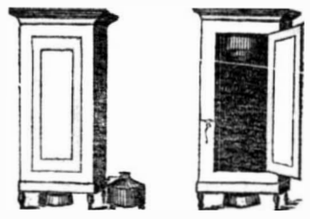
MANUFACTORY, 189 Broadway, N. Y. nov9.

Locke's Portable Shower Bath.



THE subscriber has the satisfaction to announce to the public, that he has perfected, and is prepared to furnish at short notice, a portable shower-bath, far superior in utility and convenience of management, to anything of the kind hitherto offered. It constitutes a light and genteel article of furniture for a bed-chamber, and so perfectly constructed, that either a lady or gentleman can at any moment enjoy a copious shower without the aid of servants, and without having a drop of the water sprinkled on the carpet or floor. And by a slight change in a part of the apparatus, the same may be converted to a steam-bath, either plain or aromatic. These baths are manufactured and may be examined at No. 31 Ann st. JOHN LOCKE.

Dec 4.

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